

the part of the authorities, we shall assuredly suffer total defeat in the industrial war which must of necessity follow upon the conflict of arms now raging. This is a matter in which men of science have a great responsibility to the nation. We must not cease to bring to the notice of the public the facts of which we are too fully aware. The attitude of the Government and the public towards science has been mistaken. For this formidable error we suffer and, I fear, must long continue to suffer. The remedy involves many sacrifices and heavy expenditure, probably at first without apparent return. It is to the new generation now being educated that we must look for betterment of our position; and it is for youth we must now make plans. We must make all education more scientific. It is admitted we have much to learn from our adversaries; we must bring scientific methods to the front.

Should not science be represented on the Privy Council? It is astonishing that in so august a body science is almost ignored. Ought we not to have in the Cabinet a Minister of Science with a board of advisers similar to that of Agriculture, with the proviso that the Minister of Science should hold his office primarily by virtue of his scientific capacity? Power of organisation and general business ability should be regarded as essential secondary qualifications. The newly appointed Science Councils and Committees might be incorporated under the Ministry of Science—then and then only pure research would begin to take its place as an invaluable profession, with a status of its own at least on a level with that of other learned professions. The leaders of its rank and file would be doing work of fully as much value to the nation as the work of the officers of our naval and military forces. Then, I feel convinced, the next generation would see the disappearance of listless co-operation between manufacturer and scientific workmen, and we should hear less of the inferiority of British science as compared with that of our opponents. Given equal opportunities, our men would speedily give proof of fertility of ideas, of organising powers, and of resource and initiative. Research could be so thoroughly well organised that suitable workers would be jointly engaged with those problems for the speedy elucidation of which there is the greatest need, and the results of their investigations would be at the disposal of all British manufacturers. It rests with us to keep these ideas before the mind of the public now that at last it is ripe to consider them. "Be wise to-day; 'tis madness to defer."

In conclusion, Sir William Crookes referred in felicitous words to the election of Sir J. J. Thomson as his successor in the presidential chair of the society.

NOTES.

THE Amsterdam correspondent of the *Morning Post* announces that the Dutch Royal Academy of Sciences has awarded the gold Leeuwenhoek medal for 1915 to Surgeon-General Sir David Bruce.

THE Croonian Lecture of the Royal Society will be delivered on Thursday, December 9, by Dr. W. M. Fletcher and Prof. F. G. Hopkins, on "The Respiratory Process in Muscle, and the Nature of Muscular Motion."

THE death is announced, at his residence in Dublin, of Dr. Francis T. Heuston, formerly professor of anatomy in the Royal College of Surgeons, Ireland,

and lecturer on anatomy in Carmichael College, Dublin. Dr. Heuston was well known as a consulting surgeon, and contributed many papers on professional subjects to the medical journals.

At the annual meeting of the Iron and Steel Institute, to be held next May, Sir William Beardmore, Bart., will be inducted into the chair as the new president of the institute, in succession to Dr. Adolphe Greiner. The Bessemer gold medal for 1916 will be presented to Mr. F. W. Harbord, honorary consulting metallurgist to the Ministry of Munitions. It has been decided not to hold an annual dinner next year.

At the meeting of the Faraday Society on Wednesday, December 8, a general discussion on "The Corrosion of Metals—Ferrous and Non-ferrous," will take place. The president, Sir Robert Hadfield, will take the chair. The members of the Iron and Steel Institute and of the Institute of Metals have been invited to attend the meeting. Other persons desirous of attending can obtain tickets on application to the secretary of the Faraday Society, 82 Victoria Street, S.W.

It is announced officially that arrangements have been made between the Army Council and the Ministry of Munitions for the transfer to the latter of responsibility for designs, patterns, and specifications, for the testing of arms and ammunition, and for the examination of inventions bearing on such munitions. Instructions have therefore been given for the immediate transfer to the Ministry of Munitions of the Ordnance Board, Research Department at Woolwich, Experimental Establishment at Shoeburyness, and the War Office Inventions Department.

THE death is reported, at the age of seventy-two, of Dr. E. L. Greene, the head of the botanical department at Notre Dame University, Indiana. He was professor of botany at the University of California from 1885 to 1895, and at the Catholic University of America from 1895 to 1904. He had also had an official connection with the Smithsonian Institution. Dr. Greene, who was the author of several monographs and of a flora of the San Francisco district, was president of the International Congress of Botanists held in connection with the Chicago Exposition of 1893.

At the November meeting of the Royal Physical Society of Edinburgh, the following office-bearers were elected for the 145th session, 1915-16:—*President*: Prof. Arthur Robinson; *Vice-presidents*: P. H. Grimshaw, Prof. D'Arcy W. Thompson, Dr. J. H. Ashworth; *Secretary*: Dr. James Ritchie, Royal Scottish Museum; *Assistant Secretary*: J. A. S. Watson; *Treasurer*: Wm. Williamson; *Librarian*: L. W. Hinxman; *Councillors*: Hugh Miller, Dr. Malcolm Laurie, J. Kirke Nash, Dr. B. N. Peach, Dr. J. F. Gemmill, Dr. John Rennie, Dr. D. C. McIntosh, Principal O. C. Bradley, Wm. Evans, Prof. T. Hudson Beare, T. H. Gillespie, and Prof. D. C. Matheson. In the Report of Council it was stated that two fellows of the society, Mr. L. N. G. Ramsay and Mr. C. H. Martin, had been killed in battle in France.

At the request of General Sir O'Moore Creagh, military adviser to the Central Association Volunteer Training Corps, an Engineer Volunteer Corps has been formed to meet the needs of members of the engineering profession who, by reason of age, physique, or employment on Government work, are prevented from joining the Regular or Territorial Forces. The official regulations of the association say that the policy of the Government is to encourage every man to take his part in the present struggle; and they advise all who are debarred by the reasons mentioned above to join a Volunteer Corps, so that their services may be available as a trained man in case of invasion. All men with engineering experience should join an engineer corps, where they can be trained in military engineering, especially field and fortress work (including telegraphs, searchlights, etc., in addition to infantry drill, musketry, etc.). Such a training, combined with the experience which they have gained in civil life, will render them invaluable to the authorities at a time of emergency. The Engineering Institutions Volunteer Engineer Corps gives such a training; and although the corps has not been in existence six months, a number of men are already proficient in searchlight work, and available in case of need. Sir John Snell is hon. commandant of the corps, and the general committee contains many prominent members of the engineering profession. The headquarters of the corps are at Chester House, Eccleston Place, S.W., but full information may be obtained from Lieut.-Colonel C. B. Clay, Marconi House, Strand, W.C.

THE death of Sir Allen Young, C.B., announced in the *Times* of November 20, removes one of the last survivors of the Franklin search expeditions. In his early days Allen Young entered the mercantile marine and commanded a troopship in the Crimean War. When Lady Franklin in 1857 organised an expedition to follow up Dr. John Rae's discoveries concerning the fate of her husband and his expedition, Allen Young was appointed master of the *Fox*, under Captain (afterwards Sir Leopold) McClintock. Young contributed largely to the finances of the expedition, and refused any remuneration for his services. On this expedition Young accomplished important work. In a long sledge journey he completed the discovery of Prince of Wales Island, and the west coast of North Somerset. He found McClintock Channel blocked with heavy ice and unnavigable, and pointed to Franklin Channel as the route of the north-west passage. Amundsen has since proved the truth of this contention. In 1875, in his steam yacht *Pandora*, Young led an expedition to Lancaster Sound and Bellot Strait, and in 1876 to Smith Sound. In 1882 he led the Leigh Smith search expedition in the *Hope*. Among other services, Young took part, in 1860, in the survey of the proposed North Atlantic telegraph route from the Faroes by Iceland and Greenland to Labrador. Sir Allen Young, who was knighted in 1877, was born at Twickenham eighty-five years ago. He was a younger brother of Trinity House, and a former member of the council of the Royal Geographical Society.

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By the death of Dr. James Holms Pollok on Friday last, November 26, Ireland has lost a very earnest and able scientific worker. Dr. Pollok was for many years on the staff of the Royal College of Science for Ireland, in the chemical department of which he was lecturer on physical and metallurgical chemistry. He had achieved a well-earned reputation as an industrial chemist, and was ever alert for new openings in the applications of chemistry which might benefit this country. Workers in science will remember that he was honourably associated with the late Sir Walter Hartley in researches in spectroscopic analysis—work that he continued after the death of that investigator. As a result of working with vacuum tubes, he suffered for some months from a very painful form of eczema (ultra-violet light dermatitis), induced by the rays emitted from these tubes. On the outbreak of war he devoted himself to the services of the common cause, and in time organised the Royal College of Science Voluntary Aid Detachment, and with this detachment, of which he was quartermaster, he performed very valuable services on the several occasions on which wounded soldiers have been landed in Dublin. Dr. Pollok's published contributions to chemistry and spectroscopy are represented by twelve papers communicated to the Chemical Society and the Royal Dublin Society. The chemical papers deal with a study of glucinum and its compounds, the analysis of Irish kieselguhr and the separation of rare earths. His spectroscopic researches were devoted to an examination of the spark and vacuum tube spectra of the rare and common metals, and to the utilisation of these spectra in quantitative analysis. His loss will be deeply felt by the Department of Agriculture and Technical Instruction and by the Royal College of Science for Ireland, where he was held in great esteem and affection by his colleagues and students. He leaves a widow and two daughters to mourn his loss.

At the monthly general meeting of the Zoological Society of London, held on November 17, the report of the council for the months of August, September, and October was read. Herein it was stated that during these months 406 additions had been made to the society's menagerie. Some of these were of exceptional interest. Special mention may be made to the entries for September, which included a tiger-bittern (*Tigrosoma salmoni*), ten Wilson's birds of paradise (*Schlegelia wilsoni*), ten red birds of paradise (*Paradisea rubra*), and one black manucode (*Manucodia atra*). The attendance at the gardens during the months covering this report was most gratifying, since no fewer than 436,733 passed the turnstiles, being an increase of 128,907 over the corresponding period of last year.

An address by Mr. C. P. Lounsbury, on "Some Phases of the Locust Problem," delivered before the South African Association for the Advancement of Science, is published in the *South African Journal of Science* for September. From this it is apparent that "the Union is entering upon a cycle of years when swarms of locusts will be widespread and destructive." The invading hosts have in the past been made up of two distinct species—the brown locust (*Locusta*

pardalina) and the red locust (*Pachytylus capensis*). The author briefly and lucidly reviews the previous records of such visitations, from 1653 to the present day. From the data thus collected he is enabled to show that these outbreaks follow close on the heels of seasons of prolonged drought, and is further always associated with large tracts of naturally arid country, where the rainfall is both scanty and erratic. He gives valuable notes on the life-histories of these insects, and on their natural enemies. In regard to the brown locust, he is of opinion that the eggs preserve their vitality for years in the absence of adequate moisture for their development. If indeed this be the case, it is certainly very remarkable.

THE ravages of locusts forms the subject of a special bulletin issued by the United States Department of Agriculture (No. 293). This deals with the "Grasshopper Outbreak in New Mexico during the Summer of 1913." The species mainly concerned is the long-winged grasshopper (*Dissostera longipennis*). The author, Mr. Harrison E. Smith, traces the history of this insect in America, and then proceeds to describe the life-history in detail. Among its numerous enemies birds, lizards, and toads are the most effective in keeping down its numbers. No less important are a parasitic fly (*Sarcophaga kellyi*), and sphecid and bembecid wasps. The former deposit living larvæ upon the adults, which are then doomed to be devoured alive, while the wasps paralyse large numbers and store them to serve as food for their young. But in spite of the ravages of their enemies it seems necessary to resort to artificial remedies to exterminate these pests. Of these the most effective is that afforded by a mixture of Paris green, bran, and molasses, to which is added the skin and pulp of oranges or lemons. The effect of the wholesale distribution of poison on other animals is not stated.

Two species of the genus *Rhizoctonia* of some economic importance in India form the subject of a paper by Messrs. Shaw and Ajrekar in *Memoirs of the Department of Agriculture in India*, vol. vii., No. 4. These are *R. nafi*, West, which was found as a virulent disease on mustard and on grasses, and *R. destruens*, Tass., on potatoes. Betel vine (*Piper betle*) is also seriously affected by this latter fungus in Bengal and Bombay. *R. nafi* is an omnivorous parasite, and was found to attack all plants in the vicinity of the mustard plot where it first appeared. Methods of soil sterilisation and for disinfecting potato tubers are given. It seems possible that under the name *Rhizoctonia* we are dealing with an artificial group of which the different species are vegetative stages of widely separate fungi with morphological similarities, and a study of *R. nafi* strengthens this suggestion, since it appears that it is merely a sclerotial stage of a *Botrytis*. The paper is illustrated by six plates.

THE genus *Antennaria* is represented in Greenland by several well-marked species, though usually considered to be merely forms of *A. alpina*, a species closely allied to the well-known *A. dioica* of Europe. M. P. Porsild, in *Meddelelser om Gronland*, li., describes and figures four species, of which he has made

a close study at the Danish Arctic Station at Disko, Greenland. *A. alpina* is a widely distributed Arctic alpine form extending into North America. *A. glabrata* appears to be confined to Greenland. *A. groenlandica* is a rare plant met with in southern Greenland, and probably American in origin, and *A. intermedia*, also a rare species, is found chiefly near Disko, where it may form large colonies. It is of interest to notice that *A. alpina* has been found at an altitude of 4100 ft. on Jensen's Nunatakker, in southern Greenland. All the species set seed freely, but they are apparently apogamous, as there is no record of any male plants having been seen in Greenland.

THE jand forests of the Punjab are spread over the arid, alluvial plains, where, as a rule, the rainfall does not exceed 10 in. The area covered is some 3500 square miles, and the three dominant trees are jand (*Prosopis spicigera*), wan (*Salvadora oleoides*), and karil (*Capparis aphylla*). Of these jand is a fairly valuable tree of local importance. It is chiefly remarkable owing to the length of its tap-root, specimens having been found with a tap-root as much as 84 ft. in length descending vertically to a depth of 64 ft. Mr. B. O. Coventry, in his paper on these forests in the *Indian Forester*, vol. xli., No. 9, 1915, points out that this tap-root enables the tree to obtain its water from the permanent water supply in the subsoil. Doubtless at one time the jand lived in a region liable to floods, since it has been found that no natural regeneration occurs in the jand forests, though in irrigated or flooded districts the jand is reproduced readily from seed. It seems probable that the explanation of the long tap-roots is due to the effort on the part of the tree to keep pace with the gradual lowering of the water table in the soil, resulting from the lowering of the river-beds by erosion.

OWING to the large number of papers of fundamental significance to agriculture that are awaiting publication in the *Journal of Agricultural Research*, the Secretary of the Department, Washington, announces that, beginning with vol. v., a number of the journal will appear each week. Since Russell and Hutchinson put forward their theory of the influence of protozoa upon soil fertility, much work has been done in America in the field opened out by their researches. In No. 3 of the new volume, Kopeloff, Lint, and Coleman describe a method for quantitatively separating protozoa into classes as flagellates, small ciliates, and large ciliates. The culture solution under examination is filtered through from one to five thicknesses of sterile filter-paper. The protozoan content in the filtrates passing through in the first minute is then recorded in triplicate by the authors' method described in a previous paper. The filtrates are further incubated to allow the development of any encysted forms. By treating soil and hay infusions in this way, it was found that the large ciliates are unable to pass through filter-paper at all, as noted by Russell and Hutchinson, while three thicknesses of the paper were required to remove all the small ciliates. No protozoa were found in the filtrate from five papers. In this way, mass cultures

of flagellates and small or large ciliates may be employed as necessary in attacking the difficult problems in soil protozoology that await solution. An attempt to prepare, by similar means, cultures of protozoa free from bacteria was unsuccessful, as only 90 per cent. of the bacteria could be removed. It appears unlikely that a complete separation could be effected by this method.

WE are indebted to Mr. Otto Klotz, of the seismological observatory of Ottawa, for a copy of the seismogram of the remarkable earthquake of September 6-7. The record was obtained by means of a Bosch photo-seismograph. Mr. Klotz estimates that the epicentre was 3750 kilometres from Ottawa, in lat. $14^{\circ} 14' N.$, long. $90^{\circ} 30' W.$, that is, beneath the Pacific, a short distance from the coast of Guatemala.

SURVEY work in New Zealand was seriously curtailed last year owing to decrease in staff due to many enlistments. The triangulation made slow progress, and other survey operations suffered, though in a less degree. The report on the survey operations for the year 1914-15 (Wellington, 1915) mentions the completion of maps of New Zealand on scales of an inch to ten miles, and one to a million, and announces their publication at an early date.

IN an article on the underground waters of Australia in the *Scientific Australian* (vol. xxi., No. 1, September, 1915) Mr. T. Parker directs attention to the diminished flow of water in many of the artesian wells of New South Wales, Queensland, and South Australia. An interstate conference which considered the matter heard a good deal of conflicting evidence, but came to the conclusion that the decrease was mainly due to a reduction in the supply of underground water. The opinion is held, however, that it may be due to corrosion causing defective casings in the wells, and by shocks causing breakages and leakage. Mr. Parker advocates a new investigation and a systematic survey of the wells. He hints that several of the States will shortly undertake this.

RECENT political events lend exceptional interest to the three illustrated articles which form the contents of the *National Geographic Magazine* for October (Washington, D.C.: National Geographic Society). Mr. George Higgins Moses, formerly United States Minister to Greece, contributes an article on "Greece of To-day," containing photographs both of Greek people and of historic remains. Under the authorship of "Hester Donaldson Jenkins," we have an article on Armenia and the Armenians. The illustrations in this case mainly depict the features of different types of the Armenian race; in addition, there is a beautiful frontispiece of Mount Ararat, evidently printed by an efficient differential method. The writer of this article contributed a previous article to the same magazine in April last under the title "Bulgaria and its Women." Lastly, we have Mr. James Howard Gore's article on "Roumania the Pivotal State," describing the effects on that nation of Roman envy, Goth and Hun invaders, and showing pictures of its modern towns. In the concluding sentences the author says:—"Just now a greater

conflict is raging, and the aid of Roumania is eagerly sought. Is she a pivotal State? If so, which way will she turn and what will be her reward?"

WE have received from the Carnegie Institution of Washington a classified list of its publications. The list is worth examination as an example of careful bibliography. It begins with a numbered list of the publications, giving the bibliographic details. This is followed by a catalogue of the same works classified according to subject-matter. Short accounts giving a clear idea of the argument of each of the publications form a special feature. These *résumés* appear to have been written by the authors of the books catalogued, and are in many cases in themselves quite interesting. The title often gives a very inadequate idea of the contents of a book or paper, and it is therefore much to be desired that authors should make a practice of giving a short argument or abstract as a preface to their longer papers. An alphabetical list of authors' names, including the names of collaborators, forms a useful appendix. In addition to the well-known "Index Medicus," which has now reached its fourteenth annual issue, there are in the catalogue more than 200 books and pamphlets dealing for the most part with scientific questions. These have all been published during the last ten years. Most of the physical and biological sciences are represented. Included in the list are collections of zoological papers from the Tortugas Laboratory of the Carnegie Institution and from the department of marine biology of the institution. The admirable way in which the list has been drawn up makes it possible to realise how much the Carnegie Institution has done, and is doing, for science.

THE September number of *Terrestrial Magnetism and Atmospheric Electricity* contains the first part of an article by Dr. W. F. G. Swann on the origin and maintenance of the earth's electric charge. After a short account of the leading facts of atmospheric electricity—the increase of electrical potential with altitude, the negative charge on the earth's surface, the positive charge of the atmosphere—Dr. Swann shows how difficult it is to account for the maintenance of these conditions, and how inadequate are the theories which have been put forward to explain them. Electrodynamical theories give forces too small; the emission of electric charges by the sun fails to account for the phenomena at night; the rain precipitation theory is not supported by measurements; the mobility theory has been shown to postulate a property of the negative ions they do not possess; and the theory that ionised air from cavities in the earth's crust is responsible for the principal phenomena fails to account for the observations made over the ocean. It is to be hoped that the second part of Dr. Swann's article will provide some more satisfactory explanation of these puzzling phenomena.

TECHNOLOGICAL PAPER No. 53 of the United States Bureau of Standards contains an account of an investigation of fusible tin boiler plugs. Such plugs are fitted to the top of the boiler furnace and are normally surrounded by water. Should the water level in the

boiler fall to a dangerous extent, the plug becomes hot, melts, and blows out, thus extinguishing the fire before overheating of the furnace plates can take place. It is well known that the behaviour of fusible plugs is somewhat erratic, and that they may be a source of danger on account of the false sense of security which they induce. It appears that there are two types of failures, those in which an oxide is formed as an interlocking network throughout the tin of the filling, and those in which the oxide forms as a solid hard mass at the fire end of the plug. In more than 1000 plugs examined, lead and zinc were found to be the principal impurities present, and an explanation of the formation of the network type of oxidation is found in the presence of zinc in amounts varying from 0.3 to 4 per cent. The use of pure tin of the quality of Banka (lead, traces up to 0.01 per cent.; zinc, traces) or of Straits (lead, up to 0.08 per cent.; zinc, traces up to 0.015 per cent.) would probably eliminate the danger of oxidation of these plugs in service.

A PAPER on the chemical and mechanical relations of iron, molybdenum, and carbon was read at the Institution of Mechanical Engineers on November 19 by Profs. J. O. Arnold and A. A. Read. Practical metallurgists estimate from lathe and drill experiences that, roughly, the steel-hardening power of molybdenum is from two to three times as great as that of tungsten. Theoretically, one atom of carbon is about 2.28 times as powerful in producing hardenite in true ferro-molybdenum steel as it is in forming the hardenite of true tungsten steel. Unfortunately, molybdenum is much more erratic in its behaviour than tungsten, and the latter, though the less powerful element, still sits unshaken on its throne, because of its trustworthy behaviour. The authors direct attention to the exceedingly poor mechanical properties of molybdenum steels compared with the corresponding steels containing tungsten. High molybdenum steel quenched out at a proper hardening temperature is very brittle, and it is clear that so powerful a steel-producing element should be used sparingly, avoiding large percentages. With low percentages it exerts a beneficial influence on certain classes of steel, when used cautiously either *per se*, or to replace about 2.5 times its percentage of tungsten.

THE annual report of the Board of Regents of the Smithsonian Institution for the year ending June 30, 1914, has been received from Washington. The first part of the volume, which runs to 729 pages, is devoted to the report of the secretary, which contains a summary of the researches and explorations carried out under the auspices of the institution, and eight appendices dealing with the year's work of the United States National Museum, the Bureau of American Ethnology, the National Zoological Park, the Astrophysical Observatory, and other organisations subsidised by the institution. But the most attractive section of the volume is the general appendix of nearly 600 pages containing thirty-two articles on recent advances and developments in science. These contributions are selected from scientific publications all over the world, and many are not easily accessible. The following translations of foreign scientific papers de-

serve special mention:—Modern theories of the sun, M. Jean Bosler, astronomer at the Meudon Observatory; Some remarks on logarithms apropos to their centenary, Prof. L'Ocagne, professor at the Ecole Polytechnique, Paris; The geology of the bottom of the seas, Prof. L. de Launay, professor at the Ecole supérieure des Mines, Paris; Recent oceanographic researches, Dr. Ch. Gravier; Homœotic regeneration of the antennæ in a plasmid or walking-stick, Mr. H. O. Schmit-Jensen, of Copenhagen; Latent life: its nature and its relations to certain theories of contemporary biology, Dr. Paul Becquerel; Excavations at Abydos, M. Edouard Naville; The rôle of depopulation, deforestation, and malaria in the decadence of certain nations, Dr. Felix Regnault; and a sketch of the life of Eduard Suess, by M. Pierre Termier, of the Paris Academy of Sciences. As usual, the volume is profusely and beautifully illustrated.

OUR ASTRONOMICAL COLUMN.

COMET 1915d (MELLISH).—The Copenhagen telegram announcing the discovery of this comet gave its position on September 19. According to the *Astronomische Nachrichten* (No. 4820), it was first seen by Mr. Mellish on the night of September 13, whilst on September 18 it was independently found by van Biesbroeck, Yerkes Observatory.

OCCULTATIONS BY THE MOON.—On the evening of December 10 the distant planet Uranus will be occulted by the moon. The disappearance of Uranus will occur at 6.2 p.m., and the reappearance at 6.10 p.m., so that the object will be hidden for a short period only by the limb of the moon in the apparent S.E. region of her disc. She will be four days old at the time, and visible as a narrow crescent with the opaque part perceptibly involved in earthshine. At the time of occurrence of the phenomenon the objects will be situated in the S.W. sky at a low altitude. Our satellite sets at 8.28 p.m.

On the night of December 18 some of the stars forming the Pleiades group will suffer occultation between 11h. 55m. and 13h. 51m. astronomical time. The occultation of these stars, and also that of Uranus on December 10, will require a fairly good telescope to be witnessed effectively, as the stars and planet are small, and will be partially overcome by the moon's light. This, however, refers more particularly to the occultation of the Pleiades, which takes place at a time when the moon is nearly full.

THE PERSEID METEORS IN 1915.—Meteoric astronomy is not only considerably alive in this country, but is also attracting increasing attention in the U.S.A., and we learn that there has recently been a very great increase in the membership of the American Meteor Society, from a report by Mr. Charles P. Olivier on the August meteor campaign (*Monthly Reg. Soc. Pract. Astr.*, vol. vii., No. 6). Attention was mainly given to secure data for estimating the heights of the Perseid meteors. Observers situated at four stations arranged to maintain a watch on the same absolute section of the earth's atmosphere from 12h. to 14h. on each night from August 9–13 inclusive. Two nights (10 and 11) were totally cloudy. In the present report Mr. Olivier gives a summary of the observations made at one of the stations (Leander McCormick Observatory). The maximum of the shower occurred on August 12, whilst August 13 was notable for the brilliancy of the meteors seen. The publication of the complete results obtained will be awaited with considerable interest.